

REMARKS

In view of the above amendment, Applicants believe the pending application is in condition for allowance. Claims 5-8 are now present in this application, of which claim 5 is independent. By this amendment, claims 5, 6 and 8 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119. However, the Examiner states that the certified copy of the Priority Document has not been received.

Applicants direct the Examiner's attention to the attached copy of Form PCT/IB/304 (Notification Concerning Submission or Transmittal of Priority Document) indicating that the priority document was forwarded to the U.S. Patent Office. Acknowledgment of receipt of the certified Priority Document is respectfully requested in the next Office Action.

Information Disclosure Citation

Applicants thank the Examiner for considering the references supplied with the Information Disclosure Statement filed July 12, 2006, and for providing Applicants with an initialed copy of the PTO-SB08 form filed therewith.

Drawings

Applicants thank the Examiner for indicating that the drawings are accepted.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claim 6 stands rejected under 35 U.S.C. § 112, 2nd Paragraph. This rejection is respectfully traversed.

The Examiner has set forth certain instances wherein the claim language is not clearly understood.

In order to overcome this rejection, Applicants have amended claim 6 to correct the deficiency specifically pointed out by the Examiner. Applicants respectfully submit that the claim, as amended, particularly points out and distinctly claims the subject matter which Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejections under 35 U.S.C. §103

Claims 5-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Namiki in view of Umeyama. Further, claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Namiki and Umeyama in view of Nakatsu. These rejections are respectfully traversed.

Complete discussions of the Examiner's rejections are set forth in the Office Action, and are not being repeated here.

The Examiner states that Namiki discloses the same configuration as that of independent claim 5 except for the identical ranges of various values set forth in claim 5. The Examiner further asserts that it would have been obvious to one of ordinary skill in the art to discover the optimum or workable ranges.

Applicants respectfully submit that in the present application, pressure angles of pinion teeth and rack teeth are set larger than a standard pressure angle to reduce meshing friction between the pinion teeth and the rack teeth. *See* page 6, lines 18-22. Then, based on this condition of the pressure angles, other tooth specifications are set, thereby realizing an effect of smoothly and surely performing transmission to a rack shaft having rack teeth that mesh with the pinion teeth without backlash. Therefore, the present invention achieves an unexpected result over the cited references.

The Examiner asserts that while Namiki discloses the claimed pressure angle, number of teeth, and helix angle, Namiki fails to explicitly disclose the range of a module and a tooth depth. Umeyama was cited by the Examiner for overcoming the above deficiencies noted for Namiki. In support of this position, the Examiner states that the ranges of the module and the tooth depth of the present application are shown in Table 2. However, Applicants note that according to Table 2, Umeyama discloses a module of 2.03. This value is outside of the claimed range of 1.8 to 2.0. Furthermore, with a tooth depth of 5.6, the tooth depth is equal to 2.76m (i.e., $2.76 * 2.03 = 5.6$),

which is greater than 2.5m.¹ Therefore, Umeyama does not teach or suggest the claimed ranges with regard to module and tooth depth.

In addition to the above factors, Umeyama states “[t]he designing parameters include the tooth number z , normal module m_n , tooth depth h , pressure angle α , face width b and helix angle β .” See col. 26, ll. 18-20. Therefore, Umeyama fails to disclose the feature of the present application that after the pressure angle and the stroke ratio are selected, other tooth specifications, for example, the module and a number of teeth, etc. are selected.

Considering each reference as a whole, Namiki is directed to defining a point of contact between the rack teeth and the pinion teeth according to the disclosed formulas (4) and (5) so as to prevent inclination and rocking a rack by well-balanced moments. Also, in Namiki, the disclosed pressure angle and the helix angle are taken into consideration in view of the configuration parameters and of operation aspects. Umeyama is directed to designing the tooth specifications based on an actual contact ratio. See col. 1, l. 66 to col. 2, l. 3. As such, in the absence of Applicants disclosure, one of ordinary skill in the art would not look to modify Namiki based on Umeyama for all of the reasons noted above.

Applicants respectfully submit that Fig. 7 of Namiki fails to show or describe the claimed number of teeth being 7 to 13. And, as shown in Table 2 of Umeyama, the number of teeth is 29, which is significantly more than the claimed number of teeth of 7 to 13. Therefore, even if one of ordinary skill in the art were to modify Namiki in view of Umeyama, the hypothetical combination would fail to teach all claimed limitations set forth in independent claim 5.

Nakatsu was cited for teachings unrelated to the above deficiencies of Namiki and Umeyama and therefore cannot cure the deficiencies noted above with respect to Namiki and Umeyama.

Applicants respectfully submit that the combination of elements as set forth in independent claim 5 is not disclosed or made obvious by the prior art of record, including Namiki and Umeyama, for the reasons explained above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

¹ While Umeyama discloses a tooth depth of at least 2.5m, this does not teach or suggest the claimed range of 2.0m to 2.5m, especially in light of Table 2 which provides a tooth depth of 2.76m.

With regard to dependent claims 6-8, Applicants submit that claims 6-8 depend, either directly or indirectly, from independent claim 5, which is allowable for the reasons set forth above, and therefore claims 6-8 are allowable based on their dependence from claim 5, as well as for their additionally recited subject matter. Reconsideration and allowance thereof are respectfully requested.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Chad D. Wells, Registration No. 50,875, at (703) 205-8000, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: May 5, 2009

Respectfully submitted,

By 

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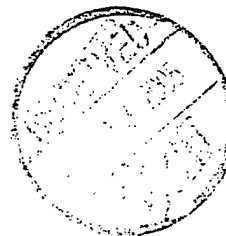
Attachment: Form PCT/IB/304

From the INTERNATIONAL BUREAU

PCTNOTIFICATION CONCERNING
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(PCT Administrative Instructions, Section 411)

To:

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| Applicant KOYO SEIKO CO., LTD. et al | |

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Priority datePriority application No.Country or regional Office
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